

## WHAT IS CLAIMED IS:

Sub 1. A joint structure of a robot, comprising:  
927 a first member and a second member connected to each other  
for relative rotation through a speed reducer; and

5 a motor for driving the second member for rotation relative to  
the first member, wherein

the speed reducer includes a first-stage speed reducing  
mechanism and a second-stage speed reducing mechanism,

10 the first-stage speed reducing mechanism includes an input  
gear connected directly to the shaft of the motor and a single spur  
gear in mesh with the input gear,

the second-stage speed reducing mechanism includes a  
crankshaft connected directly to the spur gear, an external gear which  
engages the crankshaft to be rocked eccentrically, a casing of the speed  
reducer, an internal gear which is formed inside the casing and is in  
15 mesh with the external gear, and a rotating member which supports  
the crankshaft for rotation and can rotate around the central axis of  
the internal gear with respect to the casing,

20 the casing of the second-stage speed reducing mechanism is  
attached to the first member,

the second member is attached to the rotating member of the  
second-stage speed reducing mechanism, and

25 the motor is attached to the second member so that the input  
gear of the motor is in mesh with the spur gear of the first-stage speed  
reducing mechanism.

2. The joint structure of a robot according to claim 1, wherein  
said second member is provided with a mounting portion for mounting  
the motor in a given position and is attached to the rotating member

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a motor fixed to the second member so that the output shaft thereof extends in the direction parallel to the central axis of the speed reducer toward the gear speed reducing mechanism of the speed reducer.

wherein a robot joint is constituted between the first member and the second member in a manner such that the gear speed reducing mechanism of the speed reducer is actuated by the rotation

12 of the output shaft of the motor to make the second member rock with respect to the first member.

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